receptor agonist recently approved in the United States for the treatment of acute migraine, may make these agents obsolete.

Sumatriptan is thought to relieve the pain of migraine by its direct action on a subgroup of serotonin receptors (5-hydroxytryptamine-1) in the walls of large intracranial arteries. By selectively activating serotonin receptors, sumatriptan causes vasoconstriction, thereby relieving migraine pain, which is thought to be due to vasodilation. Because sumatriptan is a selective receptor-specific agonist, it has fewer effects on the coronary and peripheral circulation than other antimigraine drugs, such as ergotamines, which are nonselective in their actions.

Studies comparing sumatriptan with placebo show that both subcutaneous and oral formulations are successful in relieving moderate to severe migraine in two hours in about 55% of patients following the oral administration of 100 mg and within an hour in about 75% of patients following a 6-mg subcutaneous dose. This compares to a placebo response of 15% to 20%. Patients not responding to a first dose of sumatriptan rarely benefit from a second dose, although the manufacturer recommends trying a second treatment. Sumatriptan is also effective in aborting the associated symptoms of nausea, vomiting, photophobia, and intolerance to noise. The drug is effective in both classic and common migraines, regardless of the time it is administered during the attack.

As many as 40% of patients who initially respond to sumatriptan have recurrent headache within 24 hours. This may be related to the short (2-hour) half-life of the drug. Whether these headaches can be prevented by repeated oral dosing has not been studied. Tachyphylaxis has not been shown to occur.

As many as half the patients treated with sumatriptan have an adverse event compared with a third of patients receiving placebo. These side effects are usually minor and resolve within 30 minutes. The most common side effects are burning, pain, and redness at the site of the injection and generalized flushing, tingling, warmth, or lightheadedness. Chest tightness is occasionally reported, but no association between chest complaints and electrocardiographic changes has been found. Nonetheless, sumatriptan is not recommended in patients with ischemic heart disease, Prinzmetal's angina, or uncontrolled hypertension or in patients taking lithium carbonate or 5-hydroxytryptamine reuptake-inhibitor antidepressants. The drug's safety has not been established in pregnant women or in children. The manufacturer of sumatriptan recommends not using ergotamine and sumatriptan within 24 hours of each other as their vasospastic effects may be additive.

Sumatriptan has undergone extensive worldwide clinical trials in the treatment of acute migraine and is now available in the United States as a 6-mg subcutaneous injection and as an autoinjector with prefilled syringes for subcutaneous self-administration by patients at home. The early use of this device at home has the potential for substantially decreasing the number of visits to emergency departments for migraine. It is anticipated that the oral form, already being used in Europe, will be available in the United States within a year. The wholesale price to hospitals is $26.50 per 6-mg dose. A starter kit with the autoinjector device and two prefilled syringes costs $56.80.

Although further clinical studies comparing the use of sumatriptan with that of existing migraine treatment regimens are needed and cost must be considered, sumatriptan has been shown to be a rapid, effective, well-tolerated treatment of migraine, and it is an important addition to the therapies currently available.

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Intravenous Diltiazem Hydrochloride Rather Than Verapamil for Resistant Paroxysmal Supraventricular Tachycardia

SUPRAVENTRICULAR TACHYCARDIA is a relatively common problem seen by physicians. Verapamil has been the medication of choice in treating stable patients with narrow-complex supraventricular tachycardia. Relatively recently, adenosine has become the first-line medication, predominantly because of its relatively short half-life and extremely safe drug profile. Many, if not most, physicians now start treatment with adenosine both diagnostically and therapeutically, but go back to giving verapamil to patients with resistant or recurrent tachycardia.

Verapamil, although a good medication for the disorder, is not free of complications. The most often quoted and feared complication is hypotension, especially in patients with already compromised circulatory function. Hypotension is thought to be due to the drug's direct cardiodepressant effects in addition to its smooth muscle vasodilatory effects. Some authors go so far as to recommend pretreatment with calcium chloride or, if hypotension develops, as an antidote. These complications make verapamil less desirable in treating patients with supraventricular tachycardia.

Diltiazem (recently available in intravenous form) now provides what appears to be a safer and more reliable treatment of this disorder than verapamil. Although a calcium channel blocker with a mechanism similar to verapamil, diltiazem exhibits considerably fewer cardiodepressant effects and is associated with fewer episodes of notable hypotension. In several small studies carried out in electrophysiology laboratories where tachycardia was induced electrically, diltiazem terminated 90% to 100% of the episodes with few episodes of serious hypotension.

This compares most favorably with verapamil, which has a similar reported conversion rate (greater than 80%) but a higher incidence of hypotension and cardiac depression.

Like verapamil, diltiazem is recommended for stable patients with narrow-complex supraventricular tachycardia as well as for the temporary control of rapid ventricular rate in atrial fibrillation or atrial flutter. The use of diltiazem, like that of verapamil, is contraindicated in patients with wide-complex tachycardia, sinoatrial or atrioventricular nodal disease, and recent β-blocker usage. The current recommended dose is 0.25 mg per kg given slowly by intravenous pyelogram over one to two minutes. If no response and no episodes of hypotension are seen after 30 minutes, the dose should be repeated at 0.35 mg per kg. Intravenous diltiazem is proving to be safe, effective, and well tolerated by patients with supraventricular tachycardia. It may soon supplant verapamil in the treatment of refractory tachycardia.

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Management of Combative Trauma Patients

THE EVALUATION IN AN EMERGENCY DEPARTMENT of an agitated, combative patient with major trauma can be difficult. It is important that physicians dealing with patients of this type have a systematic approach to their management. Combativeness by injured patients may be due to hypoxia, hypovolemia, head injury, drug or ethanol ingestion, pain, or psychogenic causes. Identifying and correcting the problem requires a physical examination and diagnostic testing. This may be impossible in a combative patient, however, leaving a clinician with three options: physically restrain the patient and delay diagnostic evaluation until the patient calms down, use a sedating agent, or invoke total chemical restraint with paralysis and intubation.

Physical restraint and observation is an inappropriate approach to a possibly injured patient. Attributing combativeness to intoxication or to psychogenic causes can be a fatal error in judgment.

Sedating agents used to control combative patients include narcotics, benzodiazepines, and butyrophenones. Narcotics and benzodiazepines have a rapid onset of action and are titratable and reversible. Respiratory depression and hypotension, however, are serious drawbacks with both classes of drugs. Butyrophenones (haloperidol and droperidol) have been suggested as the optimal sedating agents for the control of combative trauma patients. Both agents cause sedation with little effect on the respiratory drive. Possible complications of their use include prolonged sedation, hypotension, dystonic reactions, a neuroleptic malignant syndrome, and adverse interactions with ethanol or street drugs.

Total chemical restraint of a combative trauma patient with paralysis and ventilatory support has been called "inhumane" and "not justifiable." Some condemnation of this practice is based on the fear of iatrogenic complications, most important the possibility of paralyzing a patient and then being unable to ventilate that patient. Other possible complications of neuromuscular blockade include aspiration, hyperkalemia, and malignant hyperthermia. These complications, however, are rare; the risks must be weighed against the benefits of truly adequate airway control and expediting the diagnosis and management of serious injuries.

The management of combative trauma patients must be individualized. Hemodynamically stable combative patients with a low probability of major head injury can be managed with sedation alone using butyrophenones as the agents of choice. Combative patients with signs of a serious head injury should be managed from the start with rapid-sequence paralysis and intubation. Hemodynamically unstable patients should undergo rapid evaluation and resuscitation, and if it appears risky to sedate such patients without controlling their airway, neuromuscular blockade and sedation should be considered.

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Improving Emergency Department Response to Victims of Domestic Violence

MANY WOMEN who seek care in emergency departments are estimated to have symptoms directly or indirectly related to domestic violence. Some will present with injuries due to battering. Many others present with nontraumatic symptoms, such as depression, suicide attempts, chronic pain syndromes, hyperventilation, and sleep disorders. Some of the 15% to 25% of pregnant women who are battered will have pregnancy-related symptoms, such as pelvic pain, vaginal bleeding, or impending miscarriage.

Despite the prevalence of domestic violence, the diagnosis is frequently missed. Some reasons are cited in the literature for this failure to diagnose, including time constraints, failure of a patient to volunteer information, and the lack of training, prejudice, and misunderstanding on the part of medical personnel.

Although there may be clues that suggest domestic violence, from a patient's inappropriately flat or fearful demeanor, a central or defensive pattern of injuries, or the